

## Contents

### Regular papers

- Travelling on the potential energy surfaces of carbohydrates: comparative application of an exhaustive systematic conformational search with an heuristic search  
S.B. Engelsens (Nantes, France), J. Koca (Brno, Czech Republic), I. Braccini, C. Hervé du Penhoat (Paris, France) and S. Pérez (Nantes, France) . . . . . 1
- A bi-fluorescence-labeled substrate for ceramide glycanase based on fluorescence energy transfer  
K. Matsuoka, S.-I. Nishimura (Hokkaido, Japan) and Y.C. Lee (Baltimore, MD, USA) . . . . . 31
- Spacer-modified oligosaccharides with basic anchoring groups are inhibitors for endo-glycanases: porcine pancreatic alpha-amylase as model enzyme  
J. Lehmann and M. Schmidt-Schuchardt (Freiburg, Germany) . . . . . 43
- Mono-, di- and tri-antennary D-galactose ligands as competitive inhibitors and photoaffinity labels of the hexose transporting system in erythrocytes. A model for the irreversible blocking of receptors in cell membranes  
J. Lehmann and M. Scheuring (Freiburg, Germany) . . . . . 57
- Synthesis of 5-deoxy-5-epifluoro derivatives of arbekacin, amikacin, and 1-*N*-[(*S*)-4-amino-2-hydroxybutanoyl]tobramycin (study on structure — toxicity relationships)  
T. Shitara (Kawasaki, Japan), E. Umemura (Odawara, Japan), T. Tsuchiya (Kawasaki, Japan) and T. Matsuno (Odawara, Japan) . . . . . 75
- Methyl 3-amino-3-deoxy- $\beta$ -D-galactopyranosyl-(1  $\rightarrow$  4)-2-acetamido-2-deoxy- $\beta$ -D-glucopyranoside: an inhibitor of UDP-D-galactose: $\beta$ -D-galactopyranosyl-(1  $\rightarrow$  4)-2-acetamido-2-deoxy-D-glucose (1  $\rightarrow$  3)- $\alpha$ -D-galactopyranosyltransferase  
A.-C. Helland, O. Hindsgaul, M.M. Palcic (Edmonton, Canada), C.L.M. Stults and B.A. Macher (San Francisco, CA, USA) . . . . . 91
- Versatile intermediates in the selective modification of the amino function of 2-amino-2-deoxy-D-mannopyranose and the 3-position of 2-acetamido-2-deoxy-D-mannose: potential membrane modifiers in neoplastic control  
N.J. Angelino, R.J. Bernacki, M. Sharma, O. Dodson-Simmons and W. Korytnyk (Buffalo, NY, USA) . . . . . 99
- Determination of the structure of the exopolysaccharide produced by *Lactobacillus sake* 0-1  
G.W. Robijn (Utrecht, The Netherlands), D.J.C. van den Berg, H. Haas (Vlaardingen, The Netherlands), J.P. Kamerling and J.F.G. Vliegthart (Utrecht, The Netherlands) . . . . . 117
- The structure of the exopolysaccharide produced by *Lactobacillus helveticus* 766  
G.W. Robijn, J.R. Thomas (Utrecht, The Netherlands), H. Haas, D.J.C. van den Berg (Vlaardingen, The Netherlands), J.P. Kamerling and J.F.G. Vliegthart (Utrecht, The Netherlands) . . . . . 137

Carrageenans from the tetrasporic stages of <i>Gigartina clavifera</i> and <i>Gigartina alveata</i> (Gigartinaceae, Rhodophyta) R. Falshaw and R.H. Furneaux (Lower Hutt, New Zealand) . . . . .	155
Structural analysis of cyclamen seed xyloglucan oligosaccharides using cellulase digestion and spectroscopic methods I. Braccini, C. Hervé du Penhoat, V. Michon, R. Goldberg, M. Clochard (Paris, France), M.C. Jarvis (Glasgow, UK), Z.-H. Huang and D.A. Gage (East Lansing, MI, USA) . . . . .	167
Isolation and characterization of heparan sulfate from crude porcine intestinal mucosal peptidoglycan heparin C.C. Griffin (Oxford, OH, USA), R.J. Linhardt (Iowa City, IA, USA), C.L. Van Gorp (Cincinnati, OH, USA), T. Toida, R.E. Hileman (Iowa City, IA, USA), R.L. Schubert II (Cincinnati, OH, USA) and S.E. Brown (Oxford, OH, USA) . . . . .	183
Enzymic glycosylation of ( $\pm$ )-(3,5/4,6)-3,6-diazido-4,5-dihydroxycyclohexene. A way to prepare stereochemically pure and enzyme resistant, basic pseudo-disaccharides as competitive enzyme inhibitors J. Lehmann and B. Rob (Freiburg, Germany) . . . . .	199
<i>Notes</i>	
Synthesis of 4-methylcoumarin-7-yl $\beta$ -D-galactofuranoside, a fluorogenic substrate for galactofuranosidase C. Marino, M.J. Cancio, O. Varela and R.M. de Lederkremer (Buenos Aires, Argentina) . . . . .	209
Support of a cyclic versus acyclic intermediate in enzymatic glycoside cleavage: 1,3-( <i>R</i> )- <i>O</i> -benzylidene-D-threitol is a competitive inhibitor but not a substrate of $\beta$ -D-galactosidase J. Lehmann and H.-A. Wagenknecht (Freiburg, Germany) . . . . .	215
<i>Book reviews</i> . . . . .	C1
<i>Information for authors</i> . . . . .	C5
<i>Regular papers</i>	
Relative stability of alternative chair forms and hydroxymethyl conformations of $\beta$ -D-glucopyranose S.E. Barrows, F.J. Dulles, C.J. Cramer (Minneapolis, MN, USA), A.D. French (New Orleans, LA, USA) and D.G. Truhlar (Minneapolis, MN, USA) . . . . .	219
Investigation of the enolization and carbonyl group migration in reducing sugars by FTIR spectroscopy V.A. Yaylayan and A.A. Ismail (Ste. Anne de Bellevue, Canada) . . . . .	253
A self-included cyclomaltoheptaose derivative studied by NMR spectroscopy and molecular modelling P. Berthault, D. Duchesne, H. Desvaux and B. Gilquin (Gif-sur-Yvette, France) . . . . .	267
Synthesis of fluorescent and radioactive analogues of two lactosylceramides and glucosylceramide containing $\beta$ -thioglycosidic bonds that are resistant to enzymatic degradation B. Albrecht, U. Pütz and G. Schwarzmann (Bonn, Germany) . . . . .	289
The formation of 2-furaldehyde and formic acid from pentoses in slightly acidic deuterium oxide studied by $^1\text{H}$ NMR spectroscopy T. Ahmad, L. Kenne, K. Olsson and O. Theander (Uppsala, Sweden) . . . . .	309
Synthesis of uridine-5-propylamine derivatives and their use in affinity chromatography of <i>N</i> -acetylglucosaminyltransferases I and II F. Reck (Toronto, Canada) . . . . .	321

Synthesis of methyl 4-acetamido- <i>N</i> -acetyl-4-deoxy- $\alpha$ - and $\beta$ -4- <i>epi</i> -neuraminic acids B.P. Bandgar, S.V. Patil (Maharashtra, India) and E. Zbiral (Vienna, Austria) . . . . .	337
Synthesis and $^1\text{H}$ NMR characterization of the six isomeric mono- <i>O</i> -sulfates of 8-methoxycarbonyloct-1-yl <i>O</i> - $\beta$ -D-galactopyranosyl-(1 $\rightarrow$ 4)-2-acetamido-2-deoxy- $\beta$ -D-glucopyranoside R.A. Field, A. Otter, W. Fu and O. Hindsgaul (Edmonton, Canada) . . . . .	347
Structure of the <i>O</i> -deacetylated glucuronoxylomannan from <i>Cryptococcus neoformans</i> serotype C as determined by 2D $^1\text{H}$ NMR spectroscopy B.E. Bacon and R. Cherniak (Atlanta, GA, USA). . . . .	365
Solid-state NMR studies on the structure of starch granules K.R. Morgan, R.H. Furneaux (Lower Hutt, New Zealand) and N.G. Larsen (Christchurch, New Zealand) . . . . .	387
Inhibition of human leukocyte elastase by chemically and naturally oversulfated galactosaminoglycans C. Bartolucci, L. Cellai, M.A. Iannelli, D. Lamba (Rome, Italy), L. Liverani, G. Mascellani (Modena, Italy) and E. Perola (Rome, Italy) . . . . .	401
<i>Notes</i>	
Molecular and crystal structure of methyl 2,3,4-tri- <i>O</i> -acetyl- $\beta$ -D-xylopyranosyl-(1 $\rightarrow$ 2)-3- <i>O</i> -benzyl-4,6- <i>O</i> -benzylidene- $\alpha$ -D-mannopyranoside O. Kanie (Saitama, Japan), T. Takeda (Tokyo, Japan) and K. Hatano (Nagoya, Japan) . . . . .	409
Intermolecular aglycon transfer of ethyl 1-thiorhamnopyranosides under Koenigs-Knorr and Helferich glycosylation conditions D.A. Leigh, J.P. Smart and A.M. Truscetto (Manchester, UK) . . . . .	417
Synthesis of curdlan sulfates having inhibitory effects in vitro against AIDS viruses HIV-1 and HIV-2 T. Yoshida, Y. Yasuda (Sapporo, Japan), T. Mimura, Y. Kaneko, H. Nakashima, N. Yamamoto and T. Uryu (Tokyo, Japan) . . . . .	425
The $\beta$ -D-Gal pNAc-(1 $\rightarrow$ 3)-D-Gal p linkage through the oxazoline glycosylation method D. Colombo, L. Panza and F. Ronchetti (Milan, Italy) . . . . .	437
Conformational change of the $\beta$ -D-glucan of <i>Auricularia auricula-judae</i> in water-dimethyl sulfoxide mixtures L. Zhang, L. Yang and J. Chen (Wuhan, P.R. China). . . . .	443
Structural definition of the glycopeptidolipids and the pyruvylated, glycosylated acyltrehalose from <i>Mycobacterium butyricum</i> K.-H. Khoo (London, UK), R. Suzuki (Fort Collins, CO, USA), H.R. Morris, A. Dell (London, UK), P.J. Brennan and G.S. Besra (Fort Collins, CO, USA) . . . . .	449
<i>Author index</i> . . . . .	C7
<i>Subject index</i> . . . . .	C9
<i>Contents</i> . . . . .	C15